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ABSTRACT

Some meanings of the term "loose coupling" are offered, and ties between it and other concepts used to describe organizations are suggested. One research program designed to measure the degree of coupling in schools through survey methods is described, and the methodological and substantive results of that work are summarized. The paper concludes by suggesting several directions for future research, including new issues and new research approaches. A five-page bibliography is appended. (BW)

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THE STUDY OF LOOSE COUPLING: PROBLEMS, PROGRESS, AND PROSPECTS

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THE STUDY OF LOOSE COUPLING:

PROBLEMS, PROGRESS, AND PROSPECTS

One of the more challenging ideas in the study of schools as organizations over the last decade has been to view them as loosely coupled systems. This approach was popularized by Karl Weick (1976) and developed in somewhat different directions by Cohen, March, and Olsen (1972) and by Meyer and Rowan (1977). The concept of loosely coupled systems downplays efforts to treat a school as a rationally coordinated whole, viewing it more as what Weick (1976) calls a series of stable subassemblies that are responsive to each other yet separate and independent. Although the concept has benefitted from an imaginative and novel development in the last few years, it has a number of precursors in the work of Waller (1932), Bidwell (1965) and Lortie (1969) as well as a good deal of mainstream organizational sociology (Corwin, 1981). Its attraction stems partly from the novelty of its presentation but also from the unsettling questions it raises about the role and functions of school administrators and the difficulty of intentionally directed efforts to reform schools.

While the idea of loose coupling has inspired or been supported by a number of studies, extensive research has been inhibited by two problems. The first is the difficulty of translating the concept into research procedures and operationalizable measures. The second is the slowness of moving beyond evaluative, definitional questions like "are schools really loosely coupled systems?" and "is loose coupling good or bad?" to more fruitful research issues. Loose coupling is a sensitizing concept, rich in implications but difficult to examine empirically. Moreover, because the

concept is intriguing and unsettling, it is often difficult to know how it relates to earlier work (Corwin, 1981) or how it can be used to address some of the continuing issues that perplex educational researchers. In this paper I explicate some meanings of the term and suggest ties between it and other concepts used to describe organizations. I then report on one research program to measure the degree of coupling in schools through survey methods and summarize the substantive and methodological results of that work. I conclude by suggesting several directions for future research, including new issues and new research approaches.

What Loose Coupling Means

The concept of loose coupling is attractive precisely because it is unsettling and counter-intuitive, suggesting that some classical principles of administration, like centralized control and rational planning, may not be as useful as is often believed. Weick (1976) takes great pains to show the balance of functions and dysfunctions of loose coupling. For example, a breakdown in one portion of a loosely coupled system will not affect other portions. Thus, a single bad teacher will not affect a school's overall educational output, and the "damage" will not spread to other classrooms. On the other hand, it is difficult to "repair" that damage, for instance by improving the teacher's instructional abilities. Similarly, in a loosely coupled system, it is easy for individuals to innovate in their own areas but difficult for anyone to change the whole system. Finally, a loosely coupled system can respond to many small demands from the environment, but it is unable to coalesce in order to respond to major threats (Weick, 1982).

The idea of loose coupling is especially unsettling because it undermines a recurring belief about organizations, namely the centrality of leadership. Instead, it emphasizes the limitations to administrators' abilities to shape the instructional process (Deal & Celotti, 1980). In fact, Weick (1976) points out that one of the most commonly discussed coupling mechanisms in organizational theory--the authority of office--is not prominent in education. Meyer and Rowan (1978) argue that instruction is decoupled from the administrative structure of schools. Finally, March (1978:219) asserts that "changing education by changing educational administration is like changing the course of the Mississippi by spitting into the Allegheny."

If nothing else, this interpretation has political implications for school administration as an occupation. It undermines efforts to upgrade the status and power of educational administrators as an occupational group. It is hard to argue that school administrators should receive greater respect or income if they have substantially limited influence over the activities and results of the organizations they manage. This view may have other consequences as well. Lutz (1982) argues that the idea of loose coupling is now used by administrators as an excuse to escape accountability--"There's nothing I can do. It's a loosely coupled system"--in situations they <u>can</u> control. Thus, one of the major challenges raised by the idea of loose coupling is to better specify the relationship between school administration and school performance.

In addition to questioning the centrality of leadership, the idea of loose coupling challenges beliefs about the rationality of the educational enterprise by probing the linkage between intentions and actions. Weick

(1976) suggests that goals and intentions often follow and interpret actions rather than preceding actions and guiding them, especially in schools. In an extensive review of the common properties of schools, Miles (1981) concludes that they suffer from an excess of goals and lack of consensus on how goals should be prioritized. Yet, in spite of repeated conclusions along these lines, many of the agencies charged with overseeing and managing education act as if schools can and should be more rational than they are. Wise (1979) claims that the resulting "hyper-rationalization" of schools in fact impedes their efforts to educate students. Since school administrators have the task of translating politically determined goals for education into day-to-day activities, the loose coupling of intention and action raises another serious question about what this occupational group should do and how it should be done. As these examples indicate, the issues highlighted by the idea of the school as a loosely coupled system have major theoretical, political, and practical importance.

Definition and Examples

Although the idea of loose coupling has raised important issues, there are serious difficulties in using the concept to resolve them. Perhaps the major difficulty is creating a definition of loose coupling that will facilitate research activities. Weick quotes Glassman's (1973) definition: the degree of coupling between units depends on the activity of the variables that the units share. When two units have few variables in common or share weak variables, they are loosely coupled. Such a definition is exceedingly general. It emphasizes the idea of

responsiveness. That is, if an action of A leads to some reaction by B, then the two are tightly coupled. There is also a time element involved: the shorter the lag between A's action and B's response, the tighter the coupling. But sometimes the emphasis seems to be on predictability rather than responsiveness. If at 10:00am on Tuesday Johnny is in algebra or if all teachers have teaching certificates, the system--or at least part of it--is tightly coupled although exactly who is coupled to whom is not as clear (Weick, 1976).

Weick (1976) attempts to clarify these definitional issues by providing fifteen exceedingly diverse examples of loose coupling in schools. They include slack times when there is an excess of resources relative to demands, occasions when any one of several means will produce the same ends, a relative lack of coordination or slow coordination, a relative lack of regulation, planned unresponsiveness, causal independence, delegation and decentralization, the observation that a system's structure is not coterminus with its activity, situations where no matter what happens the results are the same, and courses for which there are few prerequisites. It is hard to imagine a single measure of loose coupling that can cover this range of meanings. Elsewhere, Weick (1982) defines tight coupling as a situation where there are (1) rules on which there is (2) consensus and (3) a system of inspection combined with (4) feedback to improve compliance. He suggests that loose coupling typically occurs because of a lack of consensus or inspection. Such a definition is more specific and can be operationalized: but it only covers predictable, recurring events for which rules or norms can be developed over time. What

about unpredictable events? There tight coupling probably comes from what Thompson (1967) calls mutual adjustment--direct conversation among the individuals whose work must be coordinated.

One final obstacle to operationalizing loose coupling is discussion among the parties whose actions must be coordinated. Again a variety of measurement strategies is needed. There is the lack of agreement among those who write about it. For instance, Willower (1982) points out that some view high discretion as a sign of loose coupling, but Weick sees it as an indicator of tight coupling.

Clarifying Questions

Given the range of meanings attached to the term loose coupling, it seems unlikely that anyone will develop a single, parsimonious set of measures for it. Rather, specific measures will be created for more specific inquiries. The nature of these measures will depend on answers to three questions: what are the elements thought to be coupled? what are the coupling mechanisms? and what is the purpose of the inquiry? To give some flavor of what has been done in the past and to introduce our own work, I will indicate how others have answered these questions and how we do.

Weick (1976) points out that the number of elements in schools that can be coupled is large but not infinite. One set of elements is intentions and actions: do intentions cause actions or do actions clarify and modify intentions? Another is yesterday and tomorrow: how much of what happens tomorrow depends on what happened yesterday? A third is means and ends where several means can lead to the same end. A fourth is process and outcome. One set of elements he does not refer to is time and activity where the amount of time available may or may not set limits on what can be

done. However, most of the elements that can be coupled are roles. These include voters and board members, administrators and teachers, teachers and teachers, parents and teachers, and teachers and students.

My own attention and that of my colleagues has focused on these role pairs. Since much of the interest (and anxiety) about the loose coupling arises from considerations of implications for administrators, one pair of roles we have attended to is teacher and administrator; another is teacher and teacher. One generalization frequently made about teaching as an occupation is that it is characterized by considerable autonomy--especially with respect to the conduct of instruction--but also considerable loneliness. Teachers are decoupled not only from administrators but also from their peers while they see a great deal of students (Lortie, 1969). The isolation of teachers from colleagues is viewed as an important impediment to development of the craft of teaching (Dreeben, 1973). To see how much that is the case, we wanted to learn more about teacher-teacher contacts.

Some answers to the question about what coupling mechanisms are used are provided by Weick's (1976) examples. In addition, the issue of coupling has been richly addressed by students of organizational behavior for a long period of time, albeit using different terminology. Many characteristics of the bureaucracy, like the hierarchy of offices that centralizes control of activity or the use of rules to make behaviors more predictable (Weber, 1947), are coupling mechanisms. Similarly, March and Simon's (1958) typology of coordination by plan and coordination by feedback identifies two others. Mintzberg (1983) has synthesized previously identified

mechanisms for coupling individuals or units in an organization into a five-fold typology that is summarized with modest modification as follows:

1. Mutual adjustment. The coordination of work by the simple process of direct, informal communication.

2. Direct supervision. Coordination by having one person take responsibility for the work of others, issuing instructions to them, and monitoring their actions.

3. Standardization of work processes. The prespecification or programming of the contents or procedures of work. This can be done through the creation of directions or rules and also through specially designed work devices like measuring cups or textbooks that ensure that certain amounts of information are provided.

4. Standardization of outputs. The prespecification of the results of work in terms of dimensions, quantity, or quality. This is done through product testing or quality control in industry and through standardized testing in education.

5. Enculturation or standardization of skills, knowledge, and values. Mintzberg defines this as coming through training, typically before entry to the organization, as in professional training. However, it can also include on-the-job training and informal socialization to organizational or group norms.

Because this is a typology of coupling mechanisms, it may seem important to specify which is tightest and which is loosest. One might argue that they are listed in descending order. Mutual adjustment is the tightest form of coupling since it implies direct responses among the communicating individuals and the fullest sharing of information. By contrast enculturation may be the loosest because it suggests that the primary programming of individuals occurs at one time, and they continue to act in ways that are predictable in spite of current events or messages.

Yet, this ranking misses the point of the research done on these mechanisms which is that effective coordination requires a fit between the

situation and the coordinating mechanism. For instance, standardization of work processes is the most effective form for coordinating tasks that are simple and predictable enough to be divided into small, describable units (Perrow, 1970). Standardization of outputs is preferable where the work processes are harder to describe than the end product. When tasks are complex and nondivisible but require a great deal of skill, standardization of skills is preferable (Hage, 1980). Generally, forms of standardization work best when the environment is highly predictable, but coordination requiring interaction (mutual adjustment or direct supervision) becomes important as uncertainty rises (Lawrence & Lorsch, 1967). These examples show that tightness per se is the issue. What is important is the appropriateness of the mechanism for current working conditions.

Weick (1976) makes another important point that should influence any effort to place value on coupling in terms of their tightness. He suggests that when examining a system, attention should not be focused on the tightness or looseness of specific couplings, but rather on the pattern of coupling. It is not necessary to have tight couplings between all parts of a system or to use all forms of coupling. In fact, excessively tight coupling is counterproductive. The result could lead to efforts by the school board to remediate each student's reading problem and total overload of the system. Attending to tight coupling can blind one to the importance of loose ones. Similarly, strong expectations about one kind of coupling can draw attention from another. As an example, Meyer and Rowan (1978) suggest that administration (direct supervision) is not an important coupling mechanism in schools because certification (standardization of

skills) is. Sensitivity to the full range of coupling mechanisms permits one to identify the ones operating in a situation.

The final question is what are the purposes of inquiry? Weick (1976) and Meyer and Rowan (1978) are fascinated with the problem of persistence. Why is it that in spite of alleged loose coupling a school is so widely recognizably a school? Why doesn't this organizational form drift into something else perhaps more bureaucratic or more commercial? My interest and that of my colleagues (Firestone & Herriott, 1981; Wilson & Corbett, 1983) has been in explaining the implementation of innovation and the spread of change. This has encouraged us to focus on the couplings related to uncertainty (direct supervision and mutual adjustment) and to emphasize the dysfunctions of loose coupling. It has also been a fruitful line of research that has identified a number of coupling mechanisms that do promote the spread of change in schools. Other questions are also possible. Why, for instance, has recitation persisted as the primary form of instruction since the beginning of the century (Cuban, 1982), or is there any relationship between school coupling and student learning? Such questions help specify the elements and coupling mechanisms of interest.

A Survey Approach to the Study of Coupling

The last decade has seen several efforts to overcome conceptual ambiguities in order to operationalize various coupling mechanisms and explore their causes and consequences. These include the work of John Meyer (Meyer, Scott, Cole, & Intili, 1978), Cecil Miskel (Miskel, McDonald, & Bloom, 1983), and Rosenblum and Louis (1981). My efforts, in which I worked with Robert Herriott and Bruce Wilson, began during a study of

educational change in a rural school district. In the course of that study, it became clear that the events surrounding implementation of the project were better explained by thinking of schools as loosely coupled systems than by thinking of them in more conventional bureaucratic terms (Firestone & Herriott, 1981). This led to two further questions. First, is it more useful and accurate to think of schools as loosely coupled systems than as bureaucratic organizations? Second, can the ease of program implementation and the spread of change in schools be explained by the strength of particular coupling mechanisms?

Instrument Development

Both research questions required the development of techniques to measure coupling in schools. Although our thinking had been influenced by direct observation through field work in schools, future work seemed to require a survey approach for at least two reasons. First, after looking at a few schools intensively, we were seeking a methodology that allowed us to compare larger numbers of schools. Second, we wanted to have a more precise metric for our comparisons than had been possible in my field work. At the same time, we believed that the looseness of coupling might vary among parts of the school in ways that could not be assessed by a single informant. Moreover, the use of multiple respondents to provide data on one school would overcome the bias or information limits of any single individual (Seidler, 1974). These considerations suggested to us the importance of developing a multisite, multirespondent survey approach to measuring coupling.

We began searching for opportunities to develop such a measurement approach, and three arose.

- A study of educational change carried out at Research for Better Schools (RBS). There we studied the implementation of three RBS programs. To measure contextual conditions affecting implementation, a survey was administered to 638 teachers in 13 schools (Firestone & Herriott, 1980).

- A study of the extent to which schools corresponded to different images of schools, including that of the loosely coupled system. We drew a random sample of 50 schools in southeastern Pennsylvania. A revised survey was administered to 1,323 teachers (Firestone & Herriott, 1982a).

- An effort to test the practical utility of the developing survey. We used the survey as part of a principal inservice program conducted by RBS. After revising the survey, it was administered to 2,311 teachers in 61 schools.

The culmination of our efforts is our School Assessment Survey (SAS) containing seven dimensions that measure the tightness of coupling mechanisms in schools (Wilson, Firestone, & Herriott, 1983). In identifying those mechanisms, we were convinced that after more than twenty years of using multisite, multirespondent survey techniques to study schools--dating back to the work of Halpin and Croft (1961)--there was a wide range of existing research from which we could build. We examined many studies of schools (e.g., Anderson, 1968; Corwin, 1970; Gross & Herriott, 1965; Rosenblum & Louis, 1981) and compilations of measures from studies of other organizations (e.g., Price, 1971) to identify the concepts and measurement techniques they used. Over time, we identified seven important coupling dimensions that represent four of the five basic coordinating mechanisms identified by Mintzberg.

Table 1 defines these dimensions and illustrates the kinds of questions used. The measure of mutual adjustment, called horizontal

communication, averages the frequency with which each teacher discusses educational issues with two other teachers. Three measures of direct supervision are included. The first, vertical communication, examines the extent to which teachers discuss the same topics that were included in the horizontal communication measure with superiors. Two others examine centralization of influence by comparing teachers' perceptions of their influence and that of the principal over two decision areas. Lortie (1969) suggests that influence is differentially distributed in schools with teachers having more control over day-to-day instructional matters and administrators controlling issues related to the flow of paper and resources. Separate dimensions assess centralization in each of these areas.

Table 1 about here

Work processes are often standardized through the development of rules. Our measure of this form of standardization asks teachers to report on how consistently rules governing their activity are enforced. Our instrument includes no measure of standardization of outputs, but it has two for enculturation. The first looks at agreement among staff on instructional goals for the school using a rank-ordering procedure. The second asks teachers to assess the staff's overall morale. The methodological properties of these scales are described by Wilson, Firestone, and Herriott (1983).

Uses of the Instrument

We used this instrument to explore both the overall pattern of coupling in schools and to explore the relationships between coupling and change. Our initial formulation of the first issue was to ask if schools are better viewed as loosely coupled systems or as rational bureaucracies. In this effort, we focused on two of the central coupling mechanisms that have received extensive attention by analysts of schools: the hierarchy of administrative authority as measured by centralization of influence over instruction, and agreement on goals which is one prerequisite for rational decision-making. Using a variety of samples and progressively more refined measurement procedures, we have repeatedly come to the same conclusion. Schools can be sorted into two distinct clusters. The first is more like the rational bureaucracy in that authority over instruction is more centralized (although administrators still have less influence than teachers) and goal consensus is higher. The other is more like the loosely coupled system because influence is decentralized and goal consensus is lower. Moreover, the first group consists almost entirely of elementary schools and the second almost entirely of high schools (Firestone & Herriott, 1982b; Herriott & Firestone, 1983).

This clustering of secondary and elementary schools into more and less loosely coupled clusters raises two subsidiary questions. First, what is it about schools at different levels that might account for separate patterns of coupling? Using our existing data, we have explored three possibilities:

1. Size. High schools are larger. Larger schools may increase the administrative span of control thereby limiting the principal's ability to supervise teachers and forcing decentralization. While there are no studies relating size to goal consensus, it is not unreasonable to suggest that larger groups will have greater problems reaching consensus.

2. Specialization. High schools have more subject matter specialists. The goals of such specialists should be influenced by their training in their fields thereby decreasing goal consensus. Moreover, because specialists have esoteric training, it is often necessary to decentralize when they are present.

3. Gender composition. High schools have more men. Men are generally acknowledged to have higher status in society (Lockheed & Hall, 1976). The lack of ascribed status differential (male teachers and male principals) should reduce influence differences and promote decentralization. Women are said to have greater capacity for empathy than men (Gilligan, 1979) which allows them to work out creative compromises on goals more easily.

We looked at the differences in coupling between level when controlling for each explanatory variable (size, specialization, or gender composition). If any variable explains the difference in coupling between levels, that difference should vanish when the control variable is entered. In none of these cases did the control work; the differences between levels remained strong (Firestone, Herriott, & Wilson, 1983).

This persistence led us to speculate that an institutional perspective might better account for the observed differences in our sample. That is, schools like other organizations are governed by institutionalized rules--either legal mandates or general social expectations--governing their form and behavior (Meyer & Rowan, 1977). Compliance with institutionalized rules is especially important in the public sector. If this is true, loose coupling in secondary schools is the result of larger social forces that cannot be identified through the cross-sectional designs we have been

using. Longitudinal and historic research will be needed to clarify this explanation.

The second question is how pervasive are these differences between level? Do they only occur for the two variables we have examined systematically, or does the same pattern exist with other variables? Preliminary analysis suggests that the pattern is fairly pervasive (Table 2). Five of the seven coupling dimensions show statistically significant interlevel differences. The difference is greatest with goal consensus, accounting for almost all the between-school variation. Differences in morale and centralization over classroom issues are also substantial while the differences in horizontal and vertical communication are much smaller.

Table 2 about here

The basic pattern in our sample--that secondary schools are more loosely coupled than elementary schools--raises an important challenge to Weick's (1976) notion of complementary coupling mechanisms because high schools are more loosely coupled across a wide range of dimensions. It is possible that we have not measured the tight mechanisms. Two possibilities that come to mind are certification of staff and output controls through student testing. Within our sample, the first does not seem to be at work since teachers at all levels have about the same amount of training (Firestone, Herriott, & Wilson, 1983). The second possibility may have greater force as the current expansion of student testing as a requirement for the high school diploma becomes more pervasive. However, the extensiveness of testing high school seniors is very uneven. New York state is one of the few

states with a long history of student testing (although not as a graduation requirement) and very little research has been done on its consequences for school operation. Moreover, if student testing is so important as to compensate for other forms of linkage, one would expect to find much more of it both now and in the past. In sum, a great deal remains to be learned about the reasons for and consequences of different patterns of coupling at various school levels.

The second issue we have addressed is the relationship between coupling and change. Weick (1976) suggests that tighter coupling should promote the systematic spread of change throughout a school. Wilson and Corbett (1983) explored this hypothesis using our earliest measures of coupling in the original sample. They found three coupling mechanisms that relate to the spread of change in a school. The first is a variant on goal consensus that looked at the rating of the goal that most corresponded to the purpose of the project being implemented. Where the project's purposes match the most important goal, implementation spreads more widely. The other variables associated with the spread of change are precursors to our current rule enforcement and horizontal communications variables. Thus, change does spread quickly in more tightly coupled schools. Rosenblum and Louis (1981) come to a similar conclusion. This finding may help to explain the conclusion of the RAND Change Agent Study that innovations are more easily implemented at the elementary than at the secondary level (Berman & McLaughlin, 1977).

Future Directions

In sum, we have developed a set of measures that assess a wide range of coupling mechanisms in schools. These measures have facilitated comparative research on the mechanisms coupling teachers to administrators and teachers to teachers and a move beyond our original question: are schools loosely coupled systems? Yet, there are a number of directions where future expansion will be useful. In most cases, these require designs other than the cross-sectional multisite, multirespondent survey approach we have used to date. In this section I present a menu of research topics intended to be suggestive rather than exhaustive. These have to do with measuring the standardization of outcomes, exploring culture as a coupling mechanism, exploring the outcomes of different patterns of coupling, "leadership" without direct supervision, and looking at variation in coupling within the school.

Standardization of Outcomes

As we map our measures onto Mintzberg's typology of coordinating mechanisms, the one area where we have no measures is the standardization of outcomes. Since student testing programs are formal arrangements, such mechanisms can be measured through the single-informant or document-search approach pioneered by the Aston group (Pugh, Hickson, Hinings, & Turner, 1968) and used in schools by Abramowitz and Tenenbaum (1978) among others. Perhaps more important than the development of measurement devices, however, is the design of a research program to explore the impacts of testing programs on school processes. Such a program should be historical and longitudinal. Two basic questions should be explored. First, after

the external imposition of mandatory testing programs, will instructional behaviors in school change to help students pass the test? Second, will areas that are not tested be de-emphasized?

These issues can be explored in a variety of contexts. State mandated competency testing programs provide an excellent example as do national testing programs such as the French baccalaureate examinations, the British standardized testing program, and even the American SAT. Such a research program should also consider important political issues about the relationship of state and local government. For instance, can the agency imposing the testing program avoid responsibility for helping local districts accomodate to it? Maryland has had a required graduation testing program for several years, and the SEA has felt obligated to offer training to local educators so they can adopt instructional strategies to ensure that most students will pass the tests.

Culture as a Coupling Mechanism

The study of organizational cultures has been very uneven both among those studying schools and among organizational sociologists. There have been several studies of high school cultures using a variety of methodologies (Coleman, 1961; Cusick, 1973), but these focused on the student subculture and left the professional subculture essentially unexplored. A number of sociologists examined organizational cultures (e.g. Blau, 1955); yet several recent surveys of the field have essentially ignored the concept (e.g. Hage, 1980). Mintzberg (1983) does treat enculturation--the learning of a culture--as a coupling mechanism, but he

views it as something that takes place outside the organization in a professional school or training program.

Still, the idea of a locally generated and sustained culture that coordinates the activities of organization members and shapes their perspectives and behaviors continues to be extremely useful. Our interest in this idea comes from recent research on excellent corporations. Peters and Waterman (1982) suggest a new approach to looking at patterns of coupling when they conclude that the excellent Fortune 500 corporations have "simultaneous loose-tight" properties. What they mean is that most of the formal coupling mechanisms like direct supervision, work-process standardization, and outcome standardization are rather loose. They argue that excessive attention to these coupling mechanisms--the tools of modern management--reduces costs but does not increase profits. In fact, such mechanisms can have negative effects by reducing effort, imagination, and creativity. The tight coupling in these organizations comes through a culture that provides exemplars and definitions of success while reinforcing the belief that everyone in the corporation can act in a success-producing way.

Although we have developed some measures of enculturation for our SODA instrument, full exploration of this hypothesis requires more extensive understanding of anthropological approaches to the study of culture and of the methods that have been used for that purpose. Culture has been used in a variety of ways in the study of organizations; but for these purposes, it is useful to think of it as a subsystem of the organization (Smircich, 1983). From that perspective, it can be defined as the set of publicly and collectively accepted meanings for the activities of a group of people

(Pettigrew, 1979). More specifically, it is a relatively enduring, interdependent symbolic system of values, beliefs, and assumptions evolving from and imperfectly shared by interacting organizational members that allows them to explain, coordinate, and evaluate behavior and to ascribe common meanings to events (Schall, 1983).

These definitions emphasize values, beliefs, and cognitive and symbolic processes that are sometimes context specific and therefore difficult to capture through survey approaches. To fully understand how school cultures operate, more intensive qualitative approaches employing observation and intensive interviewing will be needed. These will probably not draw on the inductive grounded theory approach (Glaser & Strauss, 1967) that was so popular when qualitative research first became popular in education. Instead, they will rely heavily on the techniques for cultural analysis developed in anthropology, popularized by Deal and Kennedy (1982), and described in more detail in a recent issue of Administrative Science Quarterly (Jelinek, Smircich, & Hirsch, 1983).

These approaches analyze on both symbols and communications patterns. Three kinds of symbols are important. Stories usually focus on individuals working in the situation and are interpreted to indicate positively or negatively valued traits or likely consequences of certain sorts of actions. Rituals are repeated ceremonial events through which core values are celebrated and reinforced. Icons are physical manifestations of key values. A variety of techniques have been used to explore the meanings inherent in these symbols and to understand how they are used to interpret events and guide choices. The include semiotics (Barley, 1983) and literary interpretations. The ones that seem to be most effective are able

to analyze both the symbols themselves and the ways they are interpreted by members of the organization (Geertz, 1973). This sort of analysis will raise certain initial problems for those interested in measuring coupling in schools. Because such analysis requires rather intensive immersion in specific settings, it does not lend itself to large-scale comparative study. Moreover, symbolic analysis is a subtle, linguistic process that does not lend itself to the type of quantification associated with survey research. A great deal remains to be learned about the cultures of schools, but such learning may have to progress through a series of case studies of individual schools and without formal measurement.

Unlike symbol systems, communications patterns can be studied with quantitative techniques that have been pioneered by anthropologists. I refer to network analysis which examines the frequency of communications among members in a group or organization and analyzes the factors that increase or decrease the amount of discussion (Holland & Leinhardt, 1979). Communications patterns can also be studied through surveys using sociometric questions and through direct observation.

The Consequences of Coupling

Weick (1976, 1982) has speculated a great deal on the consequences of different patterns of coupling in schools, but it would be especially useful to supplement this work with more concrete analyses. These could explore a wide range of issues. For instance, they might address the question raised implicitly by Meyer and Rowan (1978) about why schools continue to look like schools or Cuban's (1982) question about why recitation continues to persist in schools. Other studies might look at

more practical outcomes. For instance, we have only begun to understand how loose and tight coupling affects change efforts in schools. A great deal more can be learned in that area.

A major issue facing educational researchers right now is to explore the relationships between coupling and student outcomes. At first blush there might seem to be little reason for any direct relationship between teacher-principal and teacher-teacher linkages on the one hand and what students learn on the other. Such linkages might be expected to work more indirectly by influencing the kinds of instructional practices or teaching strategies teachers use. However, such linkages may contribute to a climate for learning that could have unexpected consequences, especially if one examines a broad range of student learning areas. For instance, more direct supervision or work-process standardization may facilitate basic skills learning and the learning of facts at the expense of the development of higher-order cognitive skills, the development of a sense of personal responsibility, or citizenship abilities. Miskel and his colleagues (1983) have initiated a program of research examining a related issue: general organizational effectiveness. Their outcome measures are survey questions drawn from the sociological literature on organizational effectiveness. Several of these are related to different kinds of school coupling measures. It is not clear, however, how their general measures relate to student outcome measures or to such other effectiveness measures as the ability to obtain needed resources (see Goodman & Pennings, 1977 for a general discussion of organizational effectiveness).

"Leadership" Without Direct Supervision

One persistent theme in the writing about loose coupling is that administrators have little influence over what goes on because of the looseness of direct supervision as a coupling mechanism. From this, they conclude that school administration as we normally think about it is a relatively unimportant activity. March (see, e.g., Cohen & March, 1974) is one of the few who seriously questions whether the focus on direct supervision allows for adequate appreciation of what school administrators do. It may be, however, that school administrators do make an important contribution to education, but that this contribution is misunderstood because of an apparently normal human tendency to focus exclusively on tight coupling.

Such speculation could be pursued in two directions. First, it is possible that the function of school administrators is to loosen couplings to the larger environment so teachers have the autonomy to teach in ways that best fit the needs of their own students. There is evidence that the noninstructional component of school district personnel has grown over the years as the environment of schools has become more complex (Cohen, 1982; Rowan, 1982). Microstudies of schools in especially complex urban environments indicate that principals actively buffer their schools from hostile demands in order to create a more stable work environment for teachers (Morris et al., 1982). Whether this finding generalizes to other situations and whether on balance this buffering work is positive or negative are questions that should be pursued.

The other direction is the relationship between school administration and student outcomes. Both the recent school effectiveness research (Wellisch et al., 1978) and earlier studies of professional leadership

(Gross & Herriott, 1965) indicate a relationship between principal activity and what students learn. The effective schools research is now receiving a rather active methodological critique so it is possible that this conclusion may not hold. It may represent another example of people's need to see tight coupling and order in organizations even where it does not exist and to attribute responsibility to formal leaders.

Still, the finding seems plausible enough to require further exploration. We have speculated that principals do not influence instruction and student outcomes through the manipulation of tight couplings. Instead, they must orches- trate a range of loose couplings so that teachers will want to act in appropriate and effective ways. The recent business literature suggests that administrators may be able to influence the cultures of their school (Peters & Waterman, 1982). Such influence combined with the judicious use of other couplings may achieve positive results (Firestone & Wilson, 1983). Exploration of this hypothesis will have to begin with careful, indepth longitudinal observation in a small number of schools to identify the nature of coupling mechanisms and how the daily activity of the principal reinforces or undermines the existing couplings. Direct observation of the principal, cultural analysis of the type proposed above, and a variety of other techniques will be needed to piece together how principals do or do not influence teachers through multiple couplings.

Variation in Coupling

All of the discussion so far assumes that any given coupling mechanism is uniformly tight or loose throughout a school and over time. Yet, it is equally possible that there is theoretically or substantively meaningful

variation in coupling within schools. This is especially likely when the school is divided into meaningful departments or subunits. Consider the following examples taken from the description of an effort to plan an innovative effort in a school:

> The departmental chairperson, a planning member, resisted making any but the most perfunctory changes during the pilot test. Although at first field agents questioned this individual's commitment to the project, they soon realized that the root of the problem was not the chairperson's own reticence but the organizational nature of the subunit. Each teacher in the department taught according to a set curriculum to which they were all committed. Anything more than a cosmetic change in practice encroached on this commitment. The only way to modify the curriculum was for a teacher to develop a proposal and present it to the group. The group then rejected or accepted it as binding for the entire department (Corbett, Dawson, & Firestone, forthcoming).

This department had tight linkages among members around its curriculum. Corbett, et al., (forthcoming) found a small but significant minority of tightly coupled subunits in their study of coupling and change. Some were coupled around work-process standardization through the curriculum, as in this case. Others were coupled through mutual adjustment where a combination of spatial arrangements and personal affinity made it easy for members of a unit to communicate. As the example above indicates, tight coupling of subunits had important implications for efforts to spread change in a school. As a rule field agents and innovators had to negotiate with the whole group for all-or-none implementation rather than trying to persuade individuals to change.

Corbett, et al. (forthcoming) also found that coupling could be tightened over time through conscious planning. The mechanism for tightening couplings was the temporary system (Miles, 1964), usually a team to plan for the selection and implementation of new programs. These teams created

significant opportunities for mutual adjustment among members around issues related to the proposed innovation.

As these examples indicate, another direction for exploration is variation in coupling in schools both among subunits and over time. This issue can be pursued in a variety of ways. For instance, Anderson (1968) used survey methods to study the causes and consequences of variation in rule enforcement among junior high school departments. Others have used symbolic analyses based on qualitative field work to describe and compare the variant subcultures of a variety of agencies (Schall, 1983). Such studies of schools would be enriched if they helped to clarify the conditions under which it is most important to think of the school, the subunit, or the classroom as the most meaningful and appropriately coupled unit for analysis or action.

It will also be useful to conduct longitudinal analyses of variation in coupling in schools. Such studies could identify actions or conditions that tighten or loosen couplings in a school or within its parts. One such list of potentially promising events includes administrative succession, the implementation of a new program, budget cutbacks and enrollment declines, changes in federal and state regulations, teacher strikes, cyclical ritual events like Christmas parties and graduations, and major sports events.

Conclusion: Coupling for What?

In describing our own studies of coupling in schools and in suggesting directions for future conceptual and methodological work, I have sought approaches that will continue to be fruitful for educational researchers.

In so doing, I have tried to avoid the two potential dead ends that I see. The first is extensive, abstract debate about whether or not schools are loosely coupled systems. Such debates are likely to founder on definitional questions like "how loose is loose?" or "how tight is tight?" without clarifying new relationships among coupling mechanisms and their causes and consequences or new patterns of coupling. They will quickly become stale and ingrown. The other risk, which has been much less evident to date, is the development of methodological tools in the absence of a clear understanding of research purposes. This happened in the study of leadership and climate where countless studies correlated the Halpin measures with all kinds of variables without the benefit of guiding theory and with very little contribution to new knowledge about schools (Bridges, 1982). For the study of coupling in schools to stay alive and move beyond the exploitation of an intriguing sensitizing concept, researchers will have to avoid definitional and methodological sterility and find ways to link the idea to real, ongoing problems in the discipline of education.

Table 1

Seven Coupling Dimensions in the School Organization Dimension Assessment (SODA) Instrument

Type of Mechanism	Dimension	Definition	Sample	Metric
Mutual Adjustment	Horizontal Communication	The extent to which information about instruction is shared among teachers.	Indicate how often you talk about each of the topics listed below with the two teachers you talk to most often: Lessons or curriculum units that work well or poorly.	Never (0) to once day or more (5).
Direct Supervision	Vertical Communication	The extent to which information about instruction is shared between administrators and teachers.	Indicate how often you talk about each of the topics listed below with administrators in this school: Lessons or curriculum units that work well or poorly.	Never (0) to once day or more (5).
	Centralization: Instruction	The ability of the principal to get teachers to carry out his/her wishes with respect to teaching activities.	Indicate how much influence teachers in the school and the principal have on the following decisions: Selecting required texts and other materials.	Principal centered (6) to teacher centered (0).
	Centralization: Resources	The ability of the principal to get teachers to carry out his/her wishes with respect to courses, schedules, assignments and the allocation of space and money.	Indicate how much influence teachers in the school and the principal have on the following decisions: Making specific faculty grade level or course assignments.	Principal centered (6) to teacher centered (0).
Standardization of work processes	Rule Enforcement	The consistency of enforcement of recognized policies in a school.	For each area, indicate whether such a policy exists and how consistently it is enforced: Use of curriculum guides.	Doesn't exist or n enforced (0) to always (5).
Standardization of outputs	None			
Enculturation	Goal Consensus	Agreement among teachers on which student skills and characteristics should require most attention in a particular school.	Rank these seven areas in terms of how important they are to you as a member of of this school: Critical and original thinking.	Most important (1) least important (7

Table 2

Differences Between Levels on
Seven Coupling Dimensions

Dimension	Level Mean		ANOVA Result	
	Elementary (N = 32)	Secondary[1] (N = 29)	F	Eta[2]
Horizontal Communication	2.39	2.16	5.3*	.082
Vertical Communication	1.59	1.38	5.8*	.089
Centralization, Classroom Instruction	-0.72	-1.32	50.8*	.463
Centralization, Curriculum and Resources	1.45	1.62	2.8	.046
Rule Enforcement	3.21	3.27	0.2	.003
Goal Consensus	.507	.219	237.3*	.800
Morale	85.8	73.3	46.5*	.441

[1]Secondary schools include middle schools, junior high schools, combined junior/senior high schools, and senior high schools.

*p $\angle$.05

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